$LiNbO_3$

DESCRIPTION

$LiNbO_3$ crystal, also known as lithium niobate crystal, or LN crystal for short, is an electro-optical crystal with excellent overall performance. LN crystal has good mechanical and physical properties and is ideal for optical polarization components due to its wide range of transparency and low cost. It is an excellent material for fiber optics communication applications such as isolators, circulators, beam displacers, and other polarized optical devices. It has a wide range of applications related to electro-optical modulators and Q-switches in Nd: YAG, Nd: YLF, and Ti: Sapphire lasers, as well as modulators in optical fibers. Compared with other electro-optic crystals, this crystal has the advantages of small size, non-dampness, large electro-optic coefficient, wide transparency range, high electro-optic efficiency, low absorption loss, and low damage threshold, and can be used in lasers at 532 nm, 1064 nm and 2940 nm, as well as frequency doubling at wavelengths above 1000 nm and optical parametric amplification of 1064 nm pumped light. In addition to electro-optical properties, lithium niobate crystals also have excellent acoustic-optical, piezoelectric and non-linear properties, which can be widely used in civil

FEATURES

- Not susceptible to deliquescence
- High temperature stability
- Large electro-optical coefficient
- Wide range of transparency
- High electro-optical efficiency
- Low damage threshold
- Easy to grow into large crystals
- Stable mechanical and chemical properties

APPLICATIONS

- Medical Applications
- Holographic Photography
- 532nm laser
- Pulse Rangefinder
- Electro-optical Q-switch
- 1064nm laser
- 2940nm laser
- Laser Target Pointer

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CRYSTAL SPECIFICATIONS

Dimensional Tolerance	±0.1mm
Angular Tolerance	±0.5°
Surface quality	20/10 S/D
Clear Aperture	>90% Central area
Surface flatness	<λ/8 @633nm
Wavefront distortion	<λ/4 @633nm
Parallelism	<20 arc sec
Perpendicularity	<5 arc min
Permeability enhancement film	Customized on request

CRYSTAL PROPERTIES

Crystal Structure	Triangular space group R3c
Melting point	1255±5℃
Curie Point	1140±5℃
Mohs Hardness	5
Density	4.64g/cm^3
Absorption coefficient	~0.1%/cm@1064nm
Solubility	Insoluble in H_2O
Relative dielectric constant	e^T_{11}/e_0:85
	e^T_{33}/e_0:29.5
Thermal conductivity	38W/m/K @25℃
Transparency range	420-5200nm
Optical uniformity	~5 ×10^{-5}/cm
Sellmeier equation	$n_o^2(\lambda)=4.9048+0.11768/(\lambda^2-0.04750)-0.027169\lambda^2$
	$n_e^2(\lambda)=4.5820+0.099169/(\lambda^2-0.04443)-0.021950\lambda^2$
Electro-optical coefficient	g^T_{33}=32pm/V ; g^S_{33}=31pm/V
	g^T_{31}=10pm/V; g^S_{31}=8.6pm/V
	g^T_{22}=6.8pm/V; g^S_{22}=3.4pm/V
Half wave voltage (DC)	3.03KV
Damage Threshold	200MW/cm^2

SPECTRA